AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A system for efficient routing in a multiple hop wireless communication network comprising a plurality of ~~network~~ infrastructure nodes, ~~characterized in that~~ the system ~~comprises~~ comprising:

~~means for~~ link monitoring circuitry for acquiring link quality information indicating link status between said infrastructure nodes;

~~means~~ electronic processing circuitry for using said link quality information in a route path determination process in the infrastructure nodes using a predictive procedure;

said link quality information containing information about a time varying information of said link status; and

said predictive procedure uses said time varying information of link status in the predictive procedure; and

~~routing means~~ a router for routing data packets according to a determined route path.

2. (Original) The system according to claim 1, characterized in that said wireless communication is a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz.

3. (Original) The system according to claim 2, characterized in that said transmission system is one or several of IEEE 802.11, IEEE 802.15, IEEE 802.16, HiperLAN, HomeRF, Bluetooth, IR, UWB, JTRS, 3G, GPRS, or EDGE.

4. (Original) The system according to claim 1, comprising a reactive ad hoc routing protocol.

5. (Original) The system according to claim 1, comprising a proactive ad hoc routing protocol.

6. (Original) The system according to claim 1, comprising a combination of reactive and proactive ad hoc routing protocols.

7. (Original) The system according to claim 1, characterized in that said link status information is radio channel status information given by measurement of at least one of Doppler spread, coherence time, average fading duration, signal strength, or signal to interference noise ratio.

8. (Original) The system according to claim 1, characterized in that said predictive procedure for an ad hoc routing protocol uses obtained link status information and a radio channel information in a comparison with determined routing anticipation criteria.

9. (Original) The system according to claim 4, characterized in that said predictive model for said reactive ad hoc routing protocol obtains information about link status and a radio channel status from modified RREP, Hello messages, Acknowledgements, or RERR messages.

10. (Original) The system according to claim 5, characterized in that said predictive model for said proactive ad hoc routing protocol comprises a modified routing table containing a route status field with information about a link status.

11. (Original) The system according to claim 1, characterized in that said link status information comprises energy status of nodes in the network.

12. (Original) The system according to claim 1, characterized in that said link status information comprises number of NACK or ACK signals between nodes in the network.

13. (Original) The system according to claim 1, characterized in that said link status information comprises number of bit errors in a communication between nodes in the network.

14. (Original) The system according to claim 1, characterized in that said link status information comprises information about ownership of nodes in the network.

15. (Original) A routing protocol used in a system according to claim 1.

16. (Original) The routing protocol according to claim 15 being one of a proactive ad hoc routing protocol, reactive ad hoc routing protocol, or a combination of a proactive and reactive ad hoc routing protocol.

17. (Currently Amended) A method for efficient routing in a wireless communication network comprising a plurality of nodes, the method comprising the steps of:

acquiring link status between nodes;

updating a routing element with link status information;

determining an efficient route path according to a predictive procedure using said link status information; and

routing traffic according to said determined route path.

18. (Original) The method according to claim 17, wherein said route determination step comprise the step of using a reactive ad hoc routing protocol.

19. (Original) The method according to claim 17, wherein said route determination step comprise the step of using a proactive ad hoc routing protocol.

20. (Original) The method according to claim 17, characterized in that said route determination step comprise the step of using a combination of reactive and proactive ad hoc routing protocols.

21. (Original) The method according to claim 17, wherein said acquiring step acquires wireless link status information from measurements of at least one of Doppler spread, coherence time, average fading duration, signal strength or signal to interference noise ratio.

22. (Original) The method according to claim 17, wherein said predictive procedure for an ad hoc routing protocol comprise the step of using obtained link status information in a comparison with determined routing anticipation criteria.

23. (Original) The method according to claim 18, wherein said predictive procedure for said reactive ad hoc routing protocol comprise the step of obtaining information about link status from modified RREP, Hello messages Acknowledgements or RERR messages.

24. (Original) The method according to claim 19, wherein said predictive procedure for said proactive ad hoc routing protocol comprise the step of modifying a routing table with a route status field with information about link status.

25. (Original) The method according to claim 17, wherein said link status information comprises energy status of nodes in the network.

26. (Original) The method according to claim 17, wherein said link status information comprises number of NACK or ACK signals between nodes in the network.

27. (Original) The method according to claim 17, wherein said link status information comprises number of bit errors in a communication between nodes in the network.

28. (Original) The method according to claim 17, wherein said link status information comprises information about ownership of nodes in the network.

29. (Original) The method according to claim 17, characterized in that said wireless communication is a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz.

30. (Previously Presented) The node according to claim 29, characterized in that said transmission system is one or several of IEEE 802.11, IEEE 802.15, IEEE 802.16, HiperLAN, HomeRF, Bluetooth, IR, UWB, JTRS, 3G, GPRS, and EDGE.

31. (Previously Presented) A node for efficient routing in a multiple hop wireless communication network, ~~characterized in that said apparatus comprises~~comprising:

link quality acquiring ~~means~~circuitry;

a link status ~~monitoring means, feeding~~ monitor, coupled to the link quality acquiring circuitry, for generating link quality status information ~~to~~;

~~routing means~~ a router for determining an appropriate route according to said link quality status information using a predictive procedure.

32. (Previously Presented) The node according to claim 31, characterized in that said wireless communication is a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz.

33. (Previously Presented) The node according to claim 32, characterized in that said transmission system is one or several of IEEE 802.11, IEEE 802.15, IEEE 802.16, HiperLAN, HomeRF, Bluetooth, IR, UWB, JTRS, 3G, GPRS, and EDGE.

34. (Previously Presented) The node according to claim 31, comprises a reactive ad hoc routing protocol.

35. (Previously Presented) The node according to claim 31, comprises a proactive ad hoc routing protocol.

36. (Previously Presented) The node according to claim 31, comprises a combination of reactive and proactive ad hoc routing protocols.

37. (Previously Presented) The node according to claim 32, characterized in that said link status information is radio channel status information given by measurement of at least one of Doppler spread, coherence time, average fading duration, signal strength, or signal to interference noise ratio.

38. (Previously Presented) The node according to claim 37, characterized in that said predictive procedure for an ad hoc routing protocol uses obtained link status information and radio channel information in a comparison with determined routing anticipation criteria.

39. (Previously Presented) The node according to claim 34, characterized in that said predictive procedure for said reactive ad hoc routing protocol obtains information about link status and radio channel status from modified RREP, Hello messages, Acknowledgements, or RERR messages.

40. (Previously Presented) The node according to claim 35 characterized in that said predictive procedure for said proactive ad hoc routing protocol has a modified routing table containing a route status field with information about radio link status.

41. (Previously Presented) The node according to claim 31, characterized in that said link status information comprises energy status of nodes in the network.

42. (Previously Presented) The node according to claim 31, characterized in that said link status information comprises number of NACK or ACK signals between nodes in the network.

43. (Previously Presented) The node according to claim 31, characterized in that said link status information comprises the number of bit errors between nodes in the network.

44. (Previously Presented) The node according to claim 31, characterized in that said link status information comprises information about ownership of nodes in the network.

45. (Currently Amended) An interlayer coordination for use in a wireless communication network comprising:

a first layer ~~(L1)~~ comprises radio channel information acquiring means ~~(3001)~~;

a second layer ~~(L2)~~ comprises link status information acquiring means ~~(115)~~; and

a third layer ~~(L3)~~ comprises link status monitoring means ~~(102)~~ obtaining radio channel and link status information from the first and second layers, route path determining means ~~(3002)~~ using said link status information in a predictive procedure, and routing means ~~(101)~~ for routing data via determined route path.

46. Canceled.

47. Canceled.

48. (Currently Amended) A method for efficient routing in a wireless network characterized in that data packets are routed using the following steps:

providing a link status information by measuring link status quality between infrastructure nodes in the network;

updating a routing element with said link status information;

determining a route path using said link status information;

routing said data packet via said determined route path; and

upon detection of a routing failure of a data packet, retransmitting said data packet via a different route path determined using a predictive procedure using link status information of infrastructure nodes in the wireless network.

49. (New) A system for efficient routing in a multiple hop wireless communication network comprising a plurality of infrastructure nodes, the system comprising:

means for acquiring link quality information indicating link status between said infrastructure nodes;

means for using said link quality information in a route path determination process in the infrastructure nodes using a predictive procedure;

said link quality information containing information about a time varying information of said link status; and

said predictive procedure uses said time varying information of link status in the predictive procedure; and

routing means for routing data packets according to a determined route path.

50. (New) A node for efficient routing in a multiple hop wireless communication network characterized in that said apparatus comprises:

link quality acquiring means;

link status monitoring means, coupled to the link quality acquiring means, for generating link quality status information; and

routing means determining an appropriate route path according to said link quality status information using a predictive procedure.

51. (New) The system according to claim 1, wherein the electronic processing circuitry is configured for to use said link quality information in a route path determination process to select higher quality links for the determined route path irrespective of whether the selected higher quality links are the most energy efficient links.

52. (New) The method according to claim 17, further comprising using said link quality information in a route path determination process to select higher quality links for the determined route path irrespective of whether the selected higher quality links are the most energy efficient links.

53. (New) The node according to claim 31, wherein the routing means is configured to use said link quality information in a route path determination process to select higher quality links for the determined route path irrespective of whether the selected higher quality links are the most energy efficient links.

54. (New) The interlayer coordination according to claim 45, wherein the route path determining means is configured to use said link quality information in a route path determination process to select higher quality links for the determined route path irrespective of whether the selected higher quality links are the most energy efficient links.

55. (New) The method according to claim 46, further comprising using said link quality information in a route path determination process to select higher quality links for the determined route path irrespective of whether the selected higher quality links are the most energy efficient links.